

WHAT IS CLAIMED IS:

1. A tufting machine comprising a frame assembly, a plurality of parallel yarn feeding bays supported by the frame, an inlet yarn guide supported by the frame and configured to guide a plurality of yarn strands into each of the bays, a needle assembly supported by the frame and configured to reciprocate relative to the frame, an outlet yarn guide configured to guide the yarn strands from the bays into the needle assembly, first and second feed roller assemblies, each extending across all of the bays, at least first and second bearing assemblies supporting both of the first and second feed roller assemblies, each of the first and second bearing assemblies being disposed between two of the bays, first and second drives configured to drive the first and second feed roller assemblies, respectively, such that the first feed roller assembly is driven at a speed greater than a speed of the second feed roller assembly, at least first and second wheels mounted adjacent the first and second shafts, respectively, the first and second wheels being moveable between first and second configurations in which the first wheel presses a first yarn strand against the first feed roller in the first configuration, and in which the second wheel presses the first yarn strand against the second feed roller when the rocker arm is in the second configuration, wherein each roller assembly comprises at least first and second coaxially aligned cylindrical members, each having a terminal end disposed in the vicinity of one of the bearing assemblies which are disposed between two bays.
2. The tufting machine according to Claim 1, wherein each cylindrical member includes a slotted end.
3. The tufting machine according to Claim 2, additionally comprising a key, wherein at least two of the cylindrical members are arranged such that their respective slots are adjacent each other, the key extending into both slots.
4. The tufting machine according to Claim 3, wherein the key is constructed of a phenolic material.
5. The tufting machine according to Claim 4, wherein the key is sized so as to provide an interference fit with the slots.
6. The tufting machine according to Claim 1, wherein the cylindrical members include a vulcanized coating.

7. The tufting machine according to Claim 1, wherein the bearing assemblies are comprised of a base member having first, second, and third recesses, the second recess being disposed between the first and third recesses.

8. The tufting machine according to Claim 7, wherein the first and second recesses are configured to support first and second bearings, respectively, the first and second bearing being disposed on the first and second cylindrical members, respectively.

9. The tufting machine according to Claim 8, wherein the first and second recesses are spaced such that the terminal ends of the first and second cylindrical members are spaced from each other when the first and second bearings are disposed in the first and second recesses, respectively.

10. The tufting machine according to Claim 9, wherein each of the terminal ends include slots.

11. The tufting machine according to Claim 10 additionally comprising a key sized so as to extend into both of the slots.

12. The tufting machine according to Claim 11, wherein the second cylindrical member is rotated by the first cylindrical member, all of the torque transferred from the first cylindrical member to the second cylindrical member passing through the key.

13. The tufting machine according to Claim 11, wherein the third recess is sized to receive the portions of the terminal ends including the slots and the key.

14. The tufting machine according to Claim 9, wherein the bearing assemblies further comprise at least first and second cap members, the first cap member being configured to overlie the first recess and at least a portion of the second recess, the second cap member being configured to overlie the third recess and at least a portion of the second recess.

15. The tufting machine according to Claim 14, wherein the first and second cap members are sized such that when the first cap member is placed to overlie the first bearing received in the first recess, the second bearing be placed into and removed from the second recess without removal of the first cap member.

16. A tufting machine comprising at least two parallel yarn feeding bays, at least one bearing support assembly disposed between the bays, at least one feed roller assembly

extending across the bays, a plurality of wheels each being moveable into and out of engagement with the feed roller assembly, the feed roller assembly comprising a plurality of co-axially aligned rollers being separable at a position in the vicinity of the bearing support assembly.

17. The tufting machine according to Claim 16, wherein each roller includes a slotted end.

18. The tufting machine according to Claim 17 additionally comprising a key, wherein at least two of the rollers are arranged such that their respective slots are adjacent each other, the key extending into both slots.

19. The tufting machine according to Claim 18, wherein the key is constructed of a phenolic material.

20. The tufting machine according to Claim 18, wherein the key is sized so as to provide an interference fit with the slots.

21. The tufting machine according to Claim 16, wherein the rollers include a vulcanized coating.

22. The tufting machine according to Claim 16, wherein the bearing support assemblies are comprised of a base member having first, second, and third recesses, the second recess being disposed between the first and third recesses.

23. The tufting machine according to Claim 22, wherein the first and second recesses are configured to support first and second bearings, respectively, the first and second bearing being disposed on first and second of the plurality of rollers, respectively.

24. The tufting machine according to Claim 23, wherein the first and second recesses are spaced such that terminal ends of the first and second rollers are spaced from each other when the first and second bearings are disposed in the first and second recesses, respectively.

25. The tufting machine according to Claim 24, wherein each end of each roller includes a slot.

26. The tufting machine according to Claim 25 additionally comprising a key sized so as to extend into two of the slots.

27. The tufting machine according to Claim 26, wherein the first roller rotates the second roller, wherein all of the torque transferred therebetween passes through the key.

28. The tufting machine according to Claim 27, wherein the third recess is sized to receive the portions of the terminal ends including the slots and the key.

29. The tufting machine according to Claim 23, wherein the bearing assemblies further comprise at least first and second cap members, the first cap member being configured to overlie the first recess and at least a portion of the second recess, the second cap member being configured to overlie the third recess and at least a portion of the second recess.

30. The tufting machine according to Claim 29, the first and second cap members are sized such that when the first cap member is placed to overlie the first bearing received in the first recess, the second bearing be placed into and removed from the second recess without removal of the first cap member.

31. A tufting machine comprising at least first, second, and third parallel yarn feeding bays, the second bay being between the first and second bays, at least one roller assembly extending across all three bays, at least one wheel moveable into and out of engagement with the roller assembly, the feed roller assembly comprising first, second, and third feed rollers aligned with the first, second, and third bays, respectively, means for allowing the second roller to be removed without removing the first and third rollers.

32. A tufting machine comprising a plurality of parallel yarn feeding bays, at least one roller assembly extending across all three bays, the feed roller assembly comprising a vulcanized outer covering.

33. The tufting machine according to Claim 32 additionally comprising an array of yarn wheels moveable into and out of engagement with the outer covering.

34. The tufting machine according to Claim 32, wherein the key is made from a phenolic material.